



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 4
ATLANTA FEDERAL CENTER
61 FORSYTH STREET
ATLANTA, GEORGIA 30303-8960

March 3, 2016

MEMORANDUM

SUBJECT: Air Compliance Inspection of Armstrong Glass Company, Inc., located in Kennesaw, Georgia, and Jennifer's Glassworks, LLC, located in Atlanta, Georgia.

FROM: Kevin I. Taylor, Environmental Engineer
South Air Enforcement & Toxics Section

Denis Kler, Environmental Engineer
North Air Enforcement & Toxics Section

TO: Todd Russo, Chief
South Air Enforcement & Toxics Section

Dick DuBose, Chief
North Air Enforcement & Toxics Section

Attached is the Quality Assurance Project Plan (QAPP) for the Air Compliance inspection that will be conducted at Armstrong Glass Company, located in Kennesaw, Georgia, and Jennifer's Glassworks, LLC, located in Atlanta, Georgia, on Thursday, March 3, 2016.

I. PROJECT INFORMATION

1. PROJECT LOCATIONS

Armstrong Glass Company
55 Chastain Road, Suite 107
Kennesaw, Georgia 30144

Jennifer's Glassworks, LLC
4875 South Atlanta Road, SE
Atlanta, Georgia 30339

2. DISTRIBUTION

A copy of this QAPP is distributed to the following list below:
Todd Russo, Chief, South Air Enforcement & Toxics Section
Dick DuBose, Chief, North Air Enforcement & Toxics Section
Denis Kler, Environmental Engineer, North Air Enforcement & Toxics Section

3. OBJECTIVES AND BACKGROUND

To inspect and analyze the operations of two facilities that are suspected of manufacturing art glass products to determine if there are any concerns with the emission of heavy metals impacting the surrounding area.

4. PROJECT DESCRIPTION

To conduct an inspection and interview to determine the level of operation and the possible impacts of emissions to the surrounding environment. The inspection will gather process information, production information, safety data sheets for raw materials and other information pertinent to the investigation.

5. FIELD STUDY DATES

March 3, 2016

II. DATA GENERATION AND ACQUISITION

1. INSTRUMENT/EQUIPMENT CALIBRATION

Not applicable. Only personal safety equipment will be taken on the inspection.

2. DATA MANAGEMENT

Any data gathered from the field will be stored in the official air compliance source file.

III. HEALTH AND SAFETY PLAN

Project No. 1 Title: Armstrong Glass Company

Location: 55 Chastain Road, Suite 107
Kennesaw, Georgia 30144

Project No. 2 Title: Jennifer's Glassworks, LLC

Location: 4875 South Atlanta Road, SE
Atlanta, Georgia 30339

**Description of
Field Activities:** Partial Compliance Evaluation

Date of Field Activity: March 3, 2016

Field Personnel: Kevin I. Taylor, Environmental Engineer
South Air Enforcement & Toxics Section

Denis Kler, Environmental Engineer
North Air Enforcement & Toxics Section

Hospital: Project No. 1
WellStar Kennestone Hospital
677 Church Street
Marietta, GA 30060
770-793-5000

Project No. 2
WellStar Windy Hill Hospital
2540 Windy Hill Road
Marietta, GA 30067
770-644-1000

Police Department: Project No. 1
Kennesaw Police Department
2539 J O Stephenson Ave, Kennesaw, GA 30144

Project No. 2
Cobb County Police Precinct No. 3
1901 Cumberland Pkwy SE, Atlanta, GA 30339

Fire Department: Project No. 1
Cobb County Fire & Emergency Services Station #16
3800 Bells Ferry Rd, Kennesaw, GA 30144

Project No. 2
Cobb County Fire Station No. 4
1901 Cumberland Pkwy SE, Atlanta, GA 30339

Emergency Number: 911

Tasks and Hazards:

Task	Hazard	Protection and Control Measures
Inspection	General Safety	Level D PPE and any facility-specific PPE

ART GLASS INSPECTION GUIDANCE QUESTIONS

1. General Information

Facility Name _____

Facility Address _____

Facility Contact Name/Title _____

Facility Phone Number _____

2. Does the facility melt any materials that are not already glassified (metal oxides, sand, soda ash, etc) or a high metal oxide containing frit (cadmium frit or lead frit)? Note: If the facility uses partial cullet and partial other materials, that is still yes. If **No**, answer the following subquestions and conclude the inspection, if **Yes** go to the next section.

- a. Describe the material used for the process (frit, glass bars, pillows, sheets) and the process involved in the design of the stained or colored glass (fusing, melting, etc.)?
- b. How much of each material is used on a daily or weekly basis (lbs)?
- c. How is the glass melted to work with? Describe the heat source and the temperatures involved. For how long and at what temperature is each piece of glass typically melted?

Glass Manufacturing Section

1. Describe the glass manufacturing process including receipt of raw materials, batch mixing, batch melting, coatings, annealing and any frit processing.
2. Describe the units (furnaces/kilns/pots) used to melt glass.
3. For melting units (referred to as furnaces but includes kilns and pots), provide the following:
 - a. The designation for the furnace.
 - b. The holding size of the furnace (lb).
 - c. Is the furnace a pot furnace (clay pot), a classic furnace (refractory rectangular shape with overfired direct heating) or a kiln (small ceramic lined vessel)?

- d. For furnaces which are not pots or kiln, answer the following:
 - i. Is glass manufactured on a continuous process or is glass added and removed with each batch?
 - ii. Is the furnace an air-gas or oxygen-gas? If the furnace is oxygen-gas, what date was it converted?
 - iii. Does the furnace have any heat recovery (recuperators or regenerators)? Describe.
 - e. When the furnace was originally constructed? Has the size, shape or operation (oxyfuel, electric, recuperative) been altered since original construction?
 - f. What is the general operating temperature of the furnace? What are the highest and lowest temperatures during a melt?
 - g. Where is the temperature in the furnace measured? Is it recorded?
 - h. Is the furnace empty regularly for more than 2 hours? If so, when and for how long? What temperature is the furnace kept at during these periods?
 - i. Obtain a schematic of the furnace with dimensions.
 - j. Obtain design information on the furnaces that includes holding capacity size and maximum glass flow in tons per hour or tons per year.
 - k. What is the refractory made out of for each furnace?
4. Describe the melting process at the facility including the time for batch charging, number of charges, cook time, labeling/emptying time, and reheat time. If it varies between furnaces describe for the different types.
 5. Describe the air pollutants emitted from the process.
 6. How much glass product is made per month and per year?
 7. Are any other metals (such as chromium, cadmium, arsenic, lead, manganese, or nickel) added to the process and, if so, which furnaces receive which metals? For each metal how much is used monthly and annually? Obtain inventory records if possible. Also obtain an MSDS for any metal used in the furnace.
 8. If chromium is added, is it hexavalent (chromates) or trivalent chromium (chromites)? This should be provided as an msds as well under #7.
 9. Where do the furnaces exhaust (roof stack, side building vent)?
 10. Are there any air emission controls on the dust handling from the raw materials, material unloading, batch mixing or frit processing? If so, review the dust capture system and get information on the baghouses in place and what process streams each baghouse receives. What is done with the dust collected from the baghouse? If it is melted, what is done with the vitrified product?
 11. Are there any air emission controls being used on the furnaces? For each unit, describe

- a. Type of unit (ESP, baghouse)
 - b. List of furnaces exhausted to the baghouse
 - c. Design, flow rate, and, for baghouses only, the type of bags.
 - d. Temperature of the exhaust in the unit
 - e. Parameters monitored and recorded?
 - f. Maintenance schedule for the unit.
 - g. Have there been any performance tests on the unit? If so provide all stack tests.
 - h. What is done with the waste from the baghouse?
 - i. Has any waste analysis been performed on baghouse dust from any of the furnaces and, if so, obtain a copy of the results.
12. Request batch tickets (or similar, like a charge record and formula) for each furnace for the last month.

Inspector Name _____ Date _____

ALL MEMBERS, ASSOCIATES AND AFFILIATES OF THE STAINED GLASS ASSOCIATION OF AMERICA

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Winterich, Daniel
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dw@winterich.com

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Zodnik, Mary
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Zoni, Bob
P.O. Box 6217
Hampden, CT 06517
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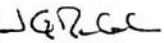
UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

FEB 25 2016

OFFICE OF
AIR AND RADIATION

MEMORANDUM

SUBJECT: Art Glass Manufacturing - Request for Regional Input

FROM: Janet G. McCabe 
Acting Assistant Administrator

TO: Regional Air Division Directors
Regions 1-10

I am writing to make you aware of an air toxics situation that has been taking place in Region 10 and ask your assistance as we work to understand the national implications of this situation. In this memo, I am summarizing the situational background and the ways in which EPA is supporting Oregon to respond. I hope you were able to attend yesterday's special purpose call and have a better understanding of the situation on the ground in Portland. My specific asks of you moving forward are to, by March 9, 2016:

1. Provide any information you currently have about the sources we've identified (attached), and if you are aware of any additional art (or colored) glass manufacturing facilities not on this list.
2. Communicate with your states to:
 - a. ensure they are aware of the issues associated with these sources in Oregon;
 - b. offer your assistance in determining whether there are similar emissions of concern associated with these sources; and
 - c. request your states provide any information they have about these sources.
3. Let me know if your Region has special expertise in this type of facility or control of these types of pollutants.

Background

The U.S. Forest Service (USFS), in a pilot study, found moss collected from trees around art glass manufacturers in the Portland area—and Bullseye Glass in particular—had much higher concentrations of heavy metals than other areas in the city. This result prompted the Oregon Department of Environmental Quality (ODEQ) to set up air monitoring systems near the company to collect 24-hour air samples every few days over a 30-day period in October 2015.

In early February, ODEQ made publicly available the results of that air monitoring, which showed high levels of cadmium and arsenic in the air and began investigating potential sources. Preliminary work suggests that the metals found in the monitoring were coming in large part from Bullseye Glass, an art glass manufacturing facility. Elevated cadmium levels were also found in proximity to another Portland glass manufacturer, Uroboros Glass. Both companies have suspended the use of chromium and

cadmium; Bullseye, which also used arsenic, has suspended its use. ODEQ has provided a summary at <http://www.deq.state.or.us/nwr/docs/metalsem/FSDEQAddressingAirToxics.pdf>, and they are providing regular updates and technical information on the Portland Metals website at <http://www.deq.state.or.us/nwr/metalsemissions.htm>.

OAQPS has identified 14 other similar facilities, which, like Bullseye and Uroboros, may manufacture art glass and may use raw metals in their processes. A Clean Air Act National Emission Standards for Hazardous Air Pollutants (NESHAP) (40 CFR Part 63, Subpart SSSSSS) for glass manufacturing area sources has been in effect since 2007. This rule applies to continuous furnaces that produce 50 tons or more of glass per year using any amount of toxic metals in the glass recipe. As noted below, one area of investigation is the applicability of Part 63, Subpart SSSSSS to these and similar facilities.

EPA Assistance

The EPA has been fully engaged to support Oregon and others as this situation has developed, including supporting efforts to identify all art glass producers that might have similar issues and all other sources of metals emissions in Oregon.

In Region 10:

- Staff and management are working closely with state partners to provide significant assistance to ODEQ and the Oregon Health Authority (OHA). Oregon has set up an incident command structure for managing this issue, and the Region 10 Operations Office in Portland is part of the team, helping to coordinate EPA's assistance as a part of the state's ongoing work.
- EPA Region 10's focus has been on supporting Oregon to work directly with impacted facilities and to provide assistance in the development of air and soil sampling programs. Two weeks ago, EPA Region 10 enforcement staff, including an expert on glass manufacturing facilities, conducted a joint inspection with ODEQ of the Bullseye Glass Company and an EPA inspection of Uroboros Glass. The EPA subsequently inspected Spectrum Glass in Washington State and conducted a joint inspection with ODEQ of Northstar Glassworks in Portland. The EPA's engineers and technical specialists from across the country¹ have participated in subsequent technical meetings with ODEQ and Bullseye Glass to provide guidance on analytical methods to characterize the sources and information on technologies available to control emissions from glass manufacturing facilities. We have supported Oregon in their actions to secure agreements from the companies to stop using the compounds that are associated with the toxic emissions found in the air monitoring until other solutions can be developed. ODEQ and OHA have been very proactive in their efforts to identify risks to the public from air toxics and in response to this specific situation.
- For the assessment of impacts, EPA Region 10 has loaned air monitoring equipment and provided supplies to ODEQ for collection of air samples to analyze for heavy metals. The EPA has also loaned ODEQ equipment to analyze soil samples and offered access to one of the EPA's science and technical assistance contractors. The EPA air and cleanup staff have offered assistance in the development of air and soil sampling programs. In addition, the EPA risk assessors stand ready to

¹ Region 10 added experts to our team from Region 7, which has worked extensively with the development of the Wool Fiberglass Rule to determine and address hexavalent chromium emissions in EJ neighborhoods. Also, OAQPS' Measurement Technology Group is providing guidance and information on hexavalent chromium emissions measurement methods. The National Risk Management Laboratory has provided background materials on chromium reactions at high temperatures.

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At Headquarters:

- Relevant experts from the Office of Air Quality Planning and Standards (OAQPS) and the Office of Research and Development (ORD) are providing technical support to Region 10 on source testing, health impacts of air toxics levels and other monitoring and impacts issues as they arise.
- The Office of Enforcement and Compliance Assistance (OECA), the Office of General Counsel (OGC) and OAQPS are jointly investigating the applicability of Part 63, Subpart SSSSSS to these and similar facilities nationally.
- OECA and Region 10 have also discussed potential use of authority under Clean Air Act Section 114 to request additional information from facilities nationwide.
- OAQPS is working to improve our characterizations of emissions from art glass manufacturing facilities.
- OAQPS and ORD are collaborating to assess the viability of the original USFS study as a screening methodology for air toxics and review screening modeling by state of Washington. This will help determine whether this modeling can be applied to other art glass manufacturing facilities.
- OAQPS is also considering the feasibility of using the Community Scale Air Toxics Ambient Monitoring funds (FY16) to reimburse the ODEQ for Portland monitoring and conduct new monitoring around other plants.

We will keep you posted on these activities and look forward to receiving additional information from you as requested above. If you or your states have questions, please contact Mike Koerber in OAQPS.

Attachment

Company Name	Street Address	Region	City	State	Zip	Phone	Notes
1 Steuben	One Museum Way	2	Corning	NY	14830	607 937-5371	fabricator?
2 Blenko Glass	9 Bill Blenko Dr.	3	Milton	WV	25541	304 743-9081	
3 Youghiogheny Glass	300 S 1st Street	3	Connellsville	PA	15425	724 628-3000	
4 Wissmach Glass	420 Stephen St.	3	Paden City	WV	26159	304 337-2253	
5 Fenton Glass	700 Elizabeth St	3	Williamstown	WV	26187	304 375-6122	closed but permitted
6 Armstrong Glass	55 Chastain Road NW	4	Kennesaw	GA	30144	770 919-9924	
7 Origin Glass (Elan Technologies)	169 Elan Court	4	Midway	GA	31320	912 880-3526	
8 Parramore Glass	PO BOX 2777	4	Asheville	NC	28802	828 456-4414	
9 Franklin glass	222 East Sycamore St	5	Columbus	OH	43206	614 221-2972	
10 Kokomo Glass	1310 S. Market St.	5	Kokomo	IN	46902	765 457-8136	
11 Pacific Art Glass	125 West 157th St	9	Gardena	CA	90248	310 780-4047	fabricator?
12 Uroboros Glass	2139 N. Kerby Ave. SE	10	Portland	OR	97227	503 284-4900	
13 Spectrum Glass	21415 87th Avenue SE	10	Woodinville	WA	98072	425 483-6699	
14 Bullseye glass	3722 SE 21st Ave	10	Portland	OR	97202	503 232-8887	
15 System 96	24105 Snohomish-Woodinville Road	10	Woodinville	WA	98072	425 483-6699	fabricator?
16 Northstar Glassworks	8228 SE 26th Place	10	Portland	OR	97202	866 684-6986	makes colored borosilicate glass
17 Trautman Art glass		10	Portland	OR			
18 Glass Alchemy		10	Portland	OR			
19 Momka's Glass	19580 23rd Avenue NE	10	Arlington	WA	98223	425 776-3417	



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

FEB 26 2016

THE ADMINISTRATOR

The Honorable Katherine Brown
Governor of Oregon
State Capitol
Salem, Oregon 97301-4047

Dear Governor Brown:

I am following up on our conversation of February 23, 2016. I want to reiterate that the United States Environmental Protection Agency fully supports the work of Oregon in responding to the air toxics situation identified in Portland and will continue to provide assistance in monitoring of air and soil, evaluation of potential control technologies, testing protocols and other activities as appropriate. In addition, I am committed to looking nationally at comparable art (or colored) glass manufacturing facilities to determine whether there are elevated levels of air toxics occurring elsewhere. Based on our research thus far, we have identified 14 facilities that appear to be similar to the two in Portland.

The EPA's Regional and Headquarters staff will continue to fully support the Oregon Department of Environmental Quality and the Oregon Health Authority as they work to address the technical and policy actions needed in Portland. In addition, I have directed staff in relevant offices across the EPA to take further steps to investigate similar art glass manufacturing facilities in other states.

I am enclosing for your reference a memo sent from the Acting Assistant Administrator for the Office of Air and Radiation, Janet McCabe, to the Air Division Directors in all EPA's Regional Offices. This memo summarizes the ongoing activities to support Oregon, and directs each Region to investigate the potential national implications of the findings in Portland.

Please know that my staff and I stand ready to assist you and commit to exploring further what else can be done, in Oregon and across the nation. If you have any questions, please contact me or your staff may contact Mark Rupp, Deputy Associate Administrator for the EPA's Office of Congressional and Intergovernmental Relations, at rupp.mark@epa.gov or at (202) 564-7178.

Sincerely,

A handwritten signature in dark ink, appearing to read "Gina McCarthy", is written over a light blue circular background.

Gina McCarthy

Enclosure



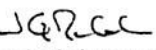
UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
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FEB 25 2016

OFFICE OF
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MEMORANDUM

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Attachment

Plant site means all contiguous or adjoining property that is under common control, including properties that are separated only by a road or other public right-of-way. Common control includes properties that are owned, leased, or operated by the same entity, parent entity, subsidiary, or any combination thereof.

Waste minimization practices mean those procedures employed to minimize material losses and prevent unnecessary waste generation, for example, minimizing glaze overspray emissions using HVLP spray equipment (defined in this section) or similar spray equipment; minimizing HAP emissions during cleanup of spray glazing equipment; operating and maintaining spray glazing equipment according to manufacturer's instructions; and minimizing spills through careful handling of HAP-containing glaze materials.

Water curtain means an APCD that draws the exhaust stream through a continuous curtain of moving water to remove suspended particulate. A water curtain may also be called a drip curtain or waterfall.

Water-wash system means an APCD that uses a series of baffles to redirect the upward exhaust stream through a water wash chamber with downward water flow to remove suspended particulate.

§ 63.11445 Who implements and enforces this subpart?

(a) This subpart can be implemented and enforced by the U.S. EPA or a dele-

Administrator has delegated authority to your State, local, or tribal agency, then that agency has the authority to implement and enforce this subpart. You should contact your U.S. EPA Regional Office to find out if this subpart is delegated to your State, local, or tribal agency.

(b) In delegating implementation and enforcement authority of this subpart to a State, local, or tribal agency under 40 CFR part 63, subpart E, the authorities contained in paragraph (c) of this section are retained by the Administrator of the U.S. EPA and are not transferred to the State, local, or tribal agency.

(c) The authorities that will not be delegated to State, local, or tribal agencies are listed in paragraphs (c)(1) through (4) of this section.

(1) Approval of alternatives to the applicability requirements in §§ 63.11435 and 63.11436, the compliance date requirements in § 63.11437, and the management practices and equipment standards in § 63.11438.

(2) Approval of a major change to a test method under § 63.7(e)(2)(ii) and (f). A "major change to test method" is defined in § 63.90.

(3) Approval of a major change to monitoring under § 63.8(f). A "major change to monitoring" is defined in § 63.90.

(4) Approval of a major change to recordkeeping/reporting under § 63.10(f). A "major change to recordkeeping/reporting" is defined in § 63.90.

§§ 63.11446–63.11447 [Reserved]

TABLE 1 TO SUBPART RRRRRR OF PART 63—APPLICABILITY OF GENERAL PROVISIONS TO SUBPART RRRRRR

As stated in § 63.11443, you must comply with the requirements of the NESHA General Provisions (40 CFR part 63, subpart A) shown in the following table:

Citation	Subject
§ 3.1(a)(1)–(a)(4), (a)(6), (a)(10)–(a)(12), (b)(1), (b)(3), (c)(1), (c)(2), (c)(5), (e)	Applicability.
§ 3.2	Definitions.
§ 3.3	Units and Abbreviations.
§ 3.4	Prohibited Activities and Circumvention.
§ 3.6(a), (b)(1)–(b)(5), (b)(7), (c)(1), (c)(2), (c)(5), (e)(1), (f), (g), (i), (j)	Compliance with Standards and Maintenance Requirements.
§ 3.8(a)(1), (a)(2), (b), (c)(1)(i)–(c)(1)(ii), (c)(2), (c)(3), (f)	Monitoring Requirements.
§ 3.9(a), (b)(1), (b)(2), (b)(5), (c), (d), (h)(1)–(h)(3), (h)(5), (h)(6), (i), (j)	Notification Requirements.

Subpart SSSSSS—National Emission Standards for Hazardous Air Pollutants for Glass Manufacturing Area Sources

SOURCE: 72 FR 73201, Dec. 26, 2007, unless otherwise noted.

APPLICABILITY AND COMPLIANCE DATES

§ 63.11448 Am I subject to this subpart?

You are subject to this subpart if you own or operate a glass manufacturing facility that is an area source of hazardous air pollutant (HAP) emissions and meets all of the criteria specified in paragraphs (a) through (c) of this section.

(a) A glass manufacturing facility is a plant site that manufactures flat glass, glass containers, or pressed and blown glass by melting a mixture of raw materials, as defined in § 63.11459, to produce molten glass and form the molten glass into sheets, containers, or other shapes.

(b) An area source of HAP emissions is any stationary source or group of stationary sources within a contiguous area under common control that does not have the potential to emit any single HAP at a rate of 9.07 megagrams per year (Mg/yr) (10 tons per year (tpy)) or more and any combination of HAP at a rate of 22.68 Mg/yr (25 tpy) or more.

(c) Your glass manufacturing facility uses one or more continuous furnaces to produce glass that contains compounds of one or more glass manufacturing metal HAP, as defined in § 63.11459, as raw materials in a glass manufacturing batch formulation.

§ 63.11449 What parts of my plant does this subpart cover?

(a) This subpart applies to each existing or new affected glass melting furnace that is located at a glass manu-

facturing facility and satisfies the requirements specified in paragraphs (a)(1) through (3) of this section.

(1) The furnace is a continuous furnace, as defined in § 63.11459.

(2) The furnace is charged with compounds of one or more glass manufacturing metal HAP as raw materials.

(3) The furnace is used to produce glass, which contains one or more of the glass manufacturing metal HAP as raw materials, at a rate of at least 45 Mg/yr (50 tpy).

(b) A furnace that is a research and development process unit, as defined in § 63.11459, is not an affected furnace under this subpart.

(c) An affected source is an existing source if you commenced construction or reconstruction of the affected source on or before September 20, 2007.

(d) An affected source is a new source if you commenced construction or reconstruction of the affected source after September 20, 2007.

(e) If you own or operate an area source subject to this subpart, you must obtain a permit under 40 CFR part 70 or 40 CFR part 71.

§ 63.11450 What are my compliance dates?

(a) If you have an existing affected source, you must comply with the applicable emission limits specified in § 63.11451 of this subpart no later than December 28, 2009. As specified in section 112(i)(3)(B) of the Clean Air Act and in § 63.6(i)(4)(A), you may request that the Administrator or delegated authority grant an extension allowing up to 1 additional year to comply with the applicable emission limits if such additional period is necessary for the installation of emission controls.

(b) If you have a new affected source, you must comply with this subpart according to paragraphs (b)(1) and (2) of this section.

63.11455(d), according to paragraphs (a)(5)(i) through (v) of this section.

(i) The date, place, and time of inspections of control device ductwork, interior, and operation.

(ii) Person conducting the inspection.

(iii) Technique or method used to conduct the inspection.

(iv) Control device operating conditions during the time of the inspection.

(v) Results of the inspection and description of any corrective action taken.

(6) Records of all required monitoring data and supporting information including all calibration and maintenance records.

(7) For each bag leak detection system, the records specified in paragraphs (a)(7)(i) through (iii) of this section.

(i) Records of the bag leak detection system output;

(ii) Records of bag leak detection system adjustments, including the date and time of the adjustment, the initial bag leak detection system settings, and the final bag leak detection system settings; and

(iii) The date and time of all bag leak detection system alarms, the time that procedures to determine the cause of the alarm were initiated, the cause of the alarm, an explanation of the actions taken, the date and time the cause of the alarm was alleviated, and whether the alarm was alleviated within 3 hours of the alarm.

(8) Records of any approved alternative monitoring method(s) or test procedure(s).

(b) Your records must be in a form suitable and readily available for expeditious review, according to § 63.10(b)(1).

(c) You must record the results of each inspection and maintenance action in a logbook (written or electronic format). You must keep the logbook onsite and make the logbook available to the permitting authority upon request.

(d) As specified in § 63.10(b)(1), you must keep each record for a minimum of 5 years following the date of each occurrence, measurement, maintenance, corrective action, report, or record.

You must keep each record onsite for at least 2 years after the date of each

occurrence, measurement, maintenance, corrective action, report, or record, according to § 63.10(b)(1). You may keep the records offsite for the remaining three years.

OTHER REQUIREMENTS AND INFORMATION

§ 63.11458 What General Provisions apply to this subpart?

You must satisfy the requirements of the General Provisions in 40 CFR part 63, subpart A, as specified in Table 2 to this subpart.

§ 63.11459 What definitions apply to this subpart?

Terms used in this subpart are defined in the Clean Air Act, in § 63.2, and in this section as follows:

Air pollution control device (APCD) means any equipment that reduces the quantity of a pollutant that is emitted to the air.

Continuous furnace means a glass manufacturing furnace that operates continuously except during periods of maintenance, malfunction, control device installation, reconstruction, or rebuilding.

Cullet means recycled glass that is mixed with raw materials and charged to a glass melting furnace to produce glass. Cullet is not considered to be a raw material for the purposes of this subpart.

Electrostatic precipitator (ESP) means an APCD that removes PM from an exhaust gas stream by applying an electrical charge to particles in the gas stream and collecting the charged particles on plates carrying the opposite electrical charge.

Fabric filter means an APCD used to capture PM by filtering a gas stream through filter media.

Furnace stack means a conduit or conveyance through which emissions from the furnace melter are released to the atmosphere.

Glass manufacturing metal HAP means an oxide or other compound of any of the following metals included in the list of urban HAP for the Integrated Urban Air Toxics Strategy and for which Glass Manufacturing was listed as an area source category: arsenic, cadmium, chromium, lead, manganese, and nickel.

Environmental Protection Agency

Glass melting furnace means a unit comprising a refractory-lined vessel in which raw materials are charged and melted at high temperature to produce molten glass.

Identical furnaces means two or more furnaces that are identical in design, including manufacturer, dimensions, production capacity, charging method, operating temperature, fuel type, burner configuration, and exhaust system configuration and design.

Particulate matter (PM) means, for purposes of this subpart, emissions of PM that serve as a measure of filterable particulate emissions, as measured by Methods 5 or 17 (40 CFR part 60, appendices A-3 and A-6), and as a surrogate for glass manufacturing metal HAP compounds contained in the PM including, but not limited to, arsenic, cadmium, chromium, lead, manganese, and nickel.

Plant site means all contiguous or adjoining property that is under common control, including properties that are separated only by a road or other public right-of-way. Common control includes properties that are owned, leased, or operated by the same entity, parent entity, subsidiary, or any combination thereof.

Raw material means minerals, such as silica sand, limestone, and dolomite; inorganic chemical compounds, such as soda ash (sodium carbonate), salt cake (sodium sulfate), and potash (potassium carbonate); metal oxides and other metal-based compounds, such as lead oxide, chromium oxide, and sodium antimonate; metal ores, such as chromite and pyrolusite; and other substances that are intentionally added to a glass manufacturing batch and melted in a glass melting furnace to produce glass. Metals that are naturally occurring trace constituents or contaminants of other substances are not considered to be raw materials. Cullet and material that is recovered from a furnace control device for recycling into the glass formulation are not considered to be raw materials for the purposes of this subpart.

Pt. 63, Subpt. SSSSSS, Table 1

clinging into the glass formulation are not considered to be raw materials for the purposes of this subpart.

Research and development process unit means a process unit whose purpose is to conduct research and development for new processes and products and is not engaged in the manufacture of products for commercial sale, except in a de minimis manner.

§ 63.11460 Who implements and enforces this subpart?

(a) This subpart can be implemented and enforced by the U.S. EPA, or a delegated authority such as your State, local, or tribal agency. If the U.S. EPA Administrator has delegated authority to your State, local, or tribal agency, then that agency has the authority to implement and enforce this subpart. You should contact your U.S. EPA Regional Office to find out if this subpart is delegated to your State, local, or tribal agency.

(b) In delegating implementation and enforcement authority of this subpart to a State, local, or tribal agency under 40 CFR part 63, subpart E, the authorities contained in paragraphs (b)(1) through (4) of this section are retained by the Administrator of the U.S. EPA and are not transferred to the State, local, or tribal agency.

(1) Approval of alternatives to the applicability requirements in §§ 63.11448 and 63.11449, the compliance date requirements in § 63.11450, and the emission limits specified in § 63.11451.

(2) Approval of a major change to test methods under § 63.7(e)(2)(ii) and (f) and as defined in § 63.90.

(3) Approval of major alternatives to monitoring under § 63.8(f) and as defined in § 63.90.

(4) Approval of major alternatives to recordkeeping under § 63.10(f) and as defined in § 63.90.

§ 63.11461 [Reserved]

TABLE 1 TO SUBPART SSSSSS OF PART 63—EMISSION LIMITS

As required in § 63.11451, you must comply with each emission limit that applies to you according to the following table:



Toxic Moss in Portland, Ore., Shakes City's Green Ideals

By **KIRK JOHNSON** MARCH 2, 2016

PORTLAND, Ore. — The 346 clumps of moss that science researchers from the United States Forest Service scraped from tree trunks and branches across this city looked as ordinary as moss gets — ancient, simple and common to the point of invisibility in the Pacific Northwest's palette of green.

But the moss had a riveting tale to tell, with shock waves that are still spreading.

Toxic heavy metals, notably cadmium, which can cause cancer and kidney malfunction, were detected in the samples, with high concentrations in particular around two glass factories in residential neighborhoods, both of which had used metals for coloring their products.

In a city that prides itself on being an environmental example to the world — from its throngs of bike commuters to its antisprawl development rules — the moss study results roared, producing an upheaval of surprise, anger and fear. Residents shouted or wept in public meetings last month, raging at state officials, who released the results and then found themselves blamed for not knowing what the factories were putting up their smokestacks.

On Tuesday, the director of Oregon's Department of Environmental Quality, Dick Pederson, resigned abruptly, saying he had health concerns that needed immediate care.

After the moss studies were released, local officials, who have said they are cautiously optimistic that public health impacts from the glass plants will in the end be minimal, raced in to take soil samples and set up air monitors. But residents near

the plants were also cautioned last month to forgo, at least for now, even the spring rites of backyard gardening, until the test results can be further analyzed — a warning that sent another shiver through a city where “eat local” is almost a mantra.

“Because there is uncertainty, the gap is filled with fear,” said Dr. Paul Lewis, the Multnomah County health officer.

Residents like Sarah Livingstone, 41, who lives about five blocks from one of the glass factories, said the moss study and its consequences had changed her life.

“It’s the last thing I think of before I go to sleep and the first thing I think of in the morning,” said Ms. Livingstone. Her 15-month-old daughter, Clara Ritter, tested positive for arsenic, which sent off alarm bells in the family even though doctors said it was within a normal range. “I don’t know how we get back to normal,” added her husband, Rex Ritter, 48, in an interview in their living room.



Rob Davis
@robwdavis

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Dick Pedersen, who shunned the spotlight once Portland's toxic pollution scare began, is out as @OregonDEQ director.
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Dick Pedersen, Oregon's top envir...

Dick Pedersen, director of Oregon's Department of Environmental Quality,
oregonlive.com

16 2

Even the Forest Service researchers who undertook the moss study — the first of its kind in the world, health experts and regulators said — were taken by surprise. The idea, they said, in keeping with their work for a federal agency that has “forest” in its name, had been about demonstrating how trees add value in an urban setting.

Measuring levels of pollution was not the goal of the research, let alone the discovery of a citywide grid of toxic hot spots.

"This wasn't at all what we set out to find," said Geoffrey Donovan, an economist who worked on the project with his research partner, Sarah Jovan, a moss and lichen expert.

The two glass companies, Uroboros Glass Studios and Bullseye Glass, both voluntarily stopped working with cadmium — used for making red, yellow and orange glass — and chromium, used in green and blue tints, after the moss results were announced in January.

But Daniel Schwoerer, a co-founder and the chief executive of Bullseye, said he thought glass-manufacturing might not be fully responsible. His factory, which opened in 1974 and has 140 workers, is also near a railroad yard, a cement plant and a metal-casting company.

"The D.E.Q. thinks we're responsible — we don't know," Mr. Schwoerer said in an interview, referring to the Department of Environmental Quality. "But we're going to do the right thing going forward."

Oregon's state epidemiologist and medical director of public health, Dr. Paul R. Cieslak, called the Forest Service study "genius" in looking where no one had ever thought to look. But the puzzle of science, anxiety and uncertainty that has resulted, he said, is messy.

And time consuming: The moss samples were gathered in late 2013, and the Forest Service team finished its analysis last May. The Department of Environmental Quality then did its own testing last fall to confirm what the moss was saying, and it released the results when they came in, in January.

"From a doctor's standpoint, they always tell us, 'Never order a test unless you know what you're going to do with the result,'" Dr. Cieslak said. "Now we're in this situation where we have all this data from the moss, and we're left struggling to figure out what does it all mean."

He said that because substances like cadmium are mainly considered risks to human health in long-term heavy exposures, and because the levels detected around the factories have so far been below the threshold of “acute,” the alarm for the moment is low. The state has said that people who want to check their own cadmium exposure could do so through a urine test with their physician — and that the state would pay for people who could not afford it — but results are just starting to come in.

“I think what we are going to end up telling people is that you are at some elevated risk, and the degree of elevation is likely to be small,” Dr. Cieslak said.

Environmental groups and legal experts said the long-term importance could be in the moss itself, as a relatively low-cost research tool. If plants can, in a way, speak of what they have absorbed, then a door has been opened to a whole new arena of pollution research.

“We are potentially at the tip of an iceberg,” said Wendy Wagner, a professor at the University of Texas at Austin School of Law who teaches environmental law. “With new tools of looking for things that we really haven’t looked for before, we’re going to be in for some surprises,” she added.

Federal air pollution laws have mostly focused on overall, or ambient, air quality — especially from emissions like carbon monoxide and lead. Metals and other toxics are less extensively monitored, Professor Wagner and other experts said, as are small companies like the two glass factories.

Portland residents like Mary Peveto said that to her, the revelation of the cadmium hot spots was no surprise. Ms. Peveto, a co-founder and president of a group called Neighbors for Clean Air, became involved in pollution issues here in 2008 after a study found that schools in Portland — including her daughter’s — had some of the worst results in the nation for industrial pollution deposits. That new hot spots are turning up all over again, she said, “shows that the system is still broken.”

Portland’s mayor, Charlie Hales, said he thought the shock from the moss study was compounded by Portland’s self-image as a city that can have it all: industry and blue-collar factory jobs, but also clean air and water.

"We are an example to the world of the green, sustainable city, and so it's all the more dissonant," Mr. Hales said.

Mr. Donovan and Ms. Jovan at the Forest Service, meanwhile, are already planning to replicate their study in a new city this spring: Cincinnati.

Doctors at Cincinnati Children's Hospital Medical Center heard about the moss study and asked the researchers to go there and make a grid map like Portland's, which will be cross-matched against health and development studies in children in various neighborhoods there.

"The first step is creating that map," said Patrick Ryan, an associate professor of pediatrics at the center. "I haven't seen anything like it before."



Flint Is in the News, but Lead Poisoning Is Even Worse in Cleveland

By **MICHAEL WINES** MARCH 3, 2016

CLEVELAND — One hundred fifty miles northwest of here, the residents of Flint, Mich., are still reeling from the drinking water debacle that more than doubled the share of children with elevated levels of lead in their blood — to a peak, in mid-2014, of 7 percent of all children tested.

Clevelanders can only sympathize. The comparable number here is 14.2 percent.

The poisoning of Flint's children outraged the nation. But too much lead in children's blood has long been an everyday fact in Cleveland and scores of other cities — not because of bungled decisions about drinking water, but largely because a decades-long attack on lead in household paint has faltered. It is a tragic reminder that one of the great public health crusades of the 20th century remains unfinished.

“Unless there is some sort of concerted national effort to do something about this problem, it's going to persist for years to come,” said Philip J. Landrigan, a leading expert on lead and professor of preventive medicine and pediatrics at the Mount Sinai School of Medicine.

“Lead is a big problem in this country, and it frustrates me to no end that except in rare cases, it passes unnoticed.”

Four decades ago, political leaders declared war on lead, citing evidence that even vanishingly small amounts of it have a pernicious impact on young brains, stunting intellectual growth and affecting cardiovascular, immune and hormone systems. Congress began phasing out leaded gasoline in 1975, and banned lead-

based household paints in 1978. In 2000, a cabinet-level task force proposed to end lead poisoning in children within a decade.

By 2006, blood lead levels in children under 6 had fallen to close to a tenth of their 1970s levels.

But progress since has slowed. By the most recent estimate, about 37 million homes and apartments still have some lead paint on walls and woodwork, 23 million with potentially hazardous levels of lead in soil, paint chips or household dust.

The Centers for Disease Control and Prevention estimate that four million of those most dangerous households have children. A half-million children — in Atlantic City, Philadelphia and Milwaukee; in Allentown, Pa., where a remarkable 23.1 percent of children tested had excessive lead — are believed to have enough lead in their blood to merit a doctor's attention.

That need not happen. New York City has both a vast and aged housing stock and one of the nation's strictest laws on lead testing and removing lead hazards. In 2014, only 2.1 percent of children tested were flagged for excessive lead.

But in most cities, the lead threat is confined largely to poor neighborhoods with scant political clout. There is little official urgency — and increasingly, little money — to address it.

Charm Warren-Celestine, 64, replaced the windows and porch of her century-old home in east Cleveland's Glenville neighborhood after her toddler grandson Zy'aire developed high blood lead levels after spending the summer of 2011 with her.

"It took me three years and two applications to get the city to do what was needed to make my dwelling lead-free," she said. "I had to apply twice because funding was exhausted. You had to be relentless to make it happen."

Almost five years later, Zy'aire shows no physical effects from the lead, but its impact on his mental development remains unclear.

Researchers argue that failing to attack lead paint hazards is a costly mistake. A 2009 study calculated that every dollar spent on that would generate up to \$221 in

benefits — in increased productivity, greater tax receipts and lower health care and education costs.

And not the least, in reduced crime. Researchers have long linked high blood lead levels to impulsiveness and violence.

The C.D.C. has consistently lowered its definition of an elevated blood lead level: 60 micrograms per deciliter, then 10, and, as of 2012, five — less than a millionth of an ounce in just over a pint of blood.

Yet experts say that is still too much. A 2005 study concluded that increasing a child's blood lead level to 10 micrograms from 2.4 translated to a 6.9-point drop in I.Q. A 2015 study of Chicago elementary school students concluded that blood lead concentrations of five to nine micrograms explained up to 15 percent of failing grades in reading and math.

Even tiny increases, below five micrograms, “are associated with significant decrements in performance on standardized tests,” the researchers said.

The 2000 cabinet task force found that the lead danger to children then could be substantially eliminated for what, in federal terms, was a pittance: \$2.1 billion, over 10 years, to eliminate lead hazards in old homes that posed the greatest threat.

Congress never allotted the full amount, and since 2003, funding for lead-abatement programs has fallen by 43 percent.

“We know how to fix it,” said David Jacobs, a chief contributor to the task force who ran the federal lead program from 1995 to 2004. “The technology is there. It’s just a matter of political will to properly appropriate the money.”

Money for screening children has also fallen. The C.D.C. has cut state grants for lead poisoning prevention by more than half since 2009, and the share of children under 6 who are tested has fallen by more than 40 percent. Sixteen states do not even forward the results of lead tests to the federal authorities.

The Ohio legislature established a Lead Poisoning Prevention Fund in 2003 to attack the lead-paint problem in older homes and to pay for blood tests of children without medical insurance — but never gave it even a dollar.

On Cleveland's east side, the Glenville neighborhood embodies both the neglect of the lead problem and the hope that it might be erased.

At the turn of the 20th century, Glenville was called Cleveland's Gold Coast, a mansion-studded enclave where John D. Rockefeller had donated land for the city's largest park. By the 1960s, the wealthy had fled to the suburbs and Glenville was part of the inner city, poor and almost entirely black.

In 1967, Thajuan Perry was 5 years old, living in a Glenville apartment with her parents, when it became clear that something was wrong with Eric, her baby brother. Eric once crawled around the rooms; suddenly, he was neither moving nor making noises.

"He would just gaze for long periods," Ms. Perry said. "It went from gazing to seizures, and from seizures to a coma."

Eric was hospitalized with lead poisoning, sickened by dust and paint chips on the apartment floor. At age 50 today, he can speak only simple sentences, takes anti-seizure medication and works at a center for the disabled.

Ms. Perry is his full-time caretaker. "The thing about lead poisoning," she said, "is that you don't know you've been affected until you have symptoms. At the time, most parents didn't realize that apartments had lead-based paint."

In Cleveland, many still do not.

In 2010, researchers estimated that 7.7 percent of the nation's black children under age 6 had blood lead levels above five micrograms per deciliter. But in Glenville, 26.5 percent of children tested in 2014 — 286 children in all — exceeded that standard. Two registered more than 45 micrograms, the threshold for hospitalization to remove lead from the body.

Cleveland tested less than half its under-6 population. How many other children are at risk is unknown, but an Ohio State University analysis suggests that in some census tracts, it could be more than four in 10.

Dr. Dorr Dearborn, a retired pediatrician and chairman emeritus of Case Western Reserve University's department of environmental health sciences, said widely elevated lead levels "give these children an abnormal base to which all the other determinants of school failure and aggressive behavior are added."

Dr. Dearborn has long campaigned for Cleveland to erase lead-based paint from its homes — nearly nine in 10 of the city's houses were built before the 1978 ban — but Clevelanders were oblivious.

That changed last October, after a series of articles in The Plain Dealer reported that the city's Department of Public Health had failed to investigate more than 2,100 cases of lead poisoning during the previous five years. Until 2015, the city had but one employee to inspect homes where lead poisoning occurred.

City officials contest some of those numbers, but in an interview they conceded that the city's lead safety efforts were a mess. The main reason, they said, was a lack of money.

When the C.D.C. began cutting lead poisoning prevention grants in 2010, the officials said, the Health Department had to curtail lead tests and lay off inspectors. In 2012, federal officials withdrew Cleveland's multimillion-dollar grant for addressing lead in homes because the city's track record was so poor.

Some critics are less sympathetic, noting that the city has found money for other projects — including \$30 million for a 2013 renovation of its National Football League stadium — while lead abatement languished.

"A lot of folks failed," said Kim Foreman, director of Environmental Health Watch, a local group that works to ease lead and other health threats in homes. "The layperson, they thought we dealt with lead. But you also have a lot of folks affected who are people of color or low-income people. And honestly, people are not as concerned about them."

The city vows to do better. The Health Department is to get new leadership; officials have committed to hire more lead inspectors. A new data system will better track lead cases and integrate with other departments that inspect or repair homes. The lost federal grant was reinstated last fall.

Perhaps most important, community leaders have started to face the problem and work on ways to solve it. University Hospital's network, the Cleveland Clinic and others are devising a program to address lead poisoning and infant mortality in neighborhoods near Case Western.

Glenville is at the head of the list

Blogtown, PDX

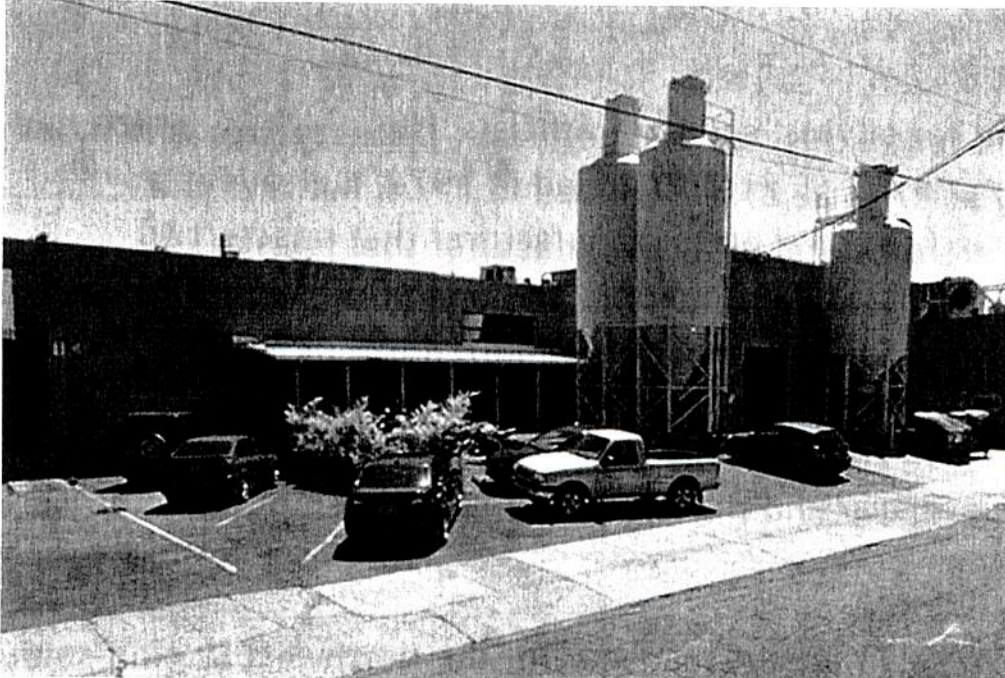
State Finds Alarming High Arsenic, Cadmium Levels Near Two SE Portland Schools

by [Daniel Forbes](#)

February 03, 2016

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- A portion of the Bullseye Glass facility in SE Portland

Within days, state officials are slated to release the alarming results of a monitoring program of airborne heavy metals, including arsenic, conducted this past October in inner Southeast Portland, the *Mercury* has learned.

The state Department of Environmental Quality and the Oregon Health Authority plan to announce that DEQ data indicate a monthly average of 49 times the state air-safety benchmark level for the neurotoxin and carcinogen cadmium, and 159 times DEQ's air-safety goal for the carcinogen arsenic.

Though DEQ is still determining roughly how far these hazardous air pollutants (as they're officially known) have spread, most immediately at risk are two Portland schools—Cleveland High School and Winterhaven K-8— and a 100-child, private day care facility on the nearby Fred Meyer corporate campus that serves children as young as six weeks old.

The likely culprit for all this, say state officials: Bullseye Glass, which has its main factory at 3722 SE 21st. Founded in 1974, Bullseye is a sizable art and architectural glass manufacturer that boasts 140 employees at its Portland headquarters and operates satellite facilities north of Oakland, in Sante Fe, and in a suburb north of New York.

"I can say, yes, we're confident it's Bullseye," said Sarah Armitage, a DEQ air toxics specialist and the agency's point person on its investigation.

David Monro, DEQ's air quality manager for the Northwest Region said: "Bullseye?—yes, I think it's the source of the cadmium and arsenic we found. It passes the straight-faced test."

Oddly enough, the way Oregon's environmental regulations are structured, there's not a thing DEQ can do to force Bullseye to alter its manufacturing processes and limit its toxic emissions. That's because the regulations are geared to much larger facilities—think companies that mass produce beer bottles—rather than high-end art glass manufacturers.

Under its state permit, the company is legally allowed to emit 10 tons of any given air pollutant a year, or 25 tons for any combination of two or more toxics spewing from their stacks. Those weights, expressed in tons, apply not to the physical raw material involved, but to the amount of aerosol emissions—the weight of the smoke, or smog, or plume.

According to an April 2011 DEQ “Discharge Permit Review Report,” Bullseye used 6,000 pounds of hazardous raw materials in 2009, which would have made it impossible for its emissions to even approach 10 tons. The company’s totally in the clear as far government limiting its activities—children across the road notwithstanding.

“They’re in compliance with their permit,” said Monro. “DEQ can’t stop them.”

Armitage put it this way: “We’re finding out the regs don’t control the risk from glass.”

Keith Dubanevich, an environmental attorney with Portland law firm Stoll Berne, offered this perspective: “Environmental regulations take place in one-size-fits all fashion.” So small firms like Bullseye slip through the cracks. Ultimately this means, he added, “We as a society are willing to tolerate pollution.”

Be that as it may, Stuart Batterman, a professor of both environmental health and environmental engineering at the University of Michigan, said, "That site needs to be brought under control."

According to that 2011 DEQ Bullseye permit review, "materials used at the facility may include arsenic trioxide, cadmium, selenium, chromium, and lead as coloring agents or to produce trade-mark characteristics in the glass." DEQ notes that Bullseye used 825 pounds of arsenic in 2009, much of it shoveled into a furnace to be melted along with all the other raw material to give some very nice glass its pretty color. The company website notes that it makes 27 different glass products that contain "more than 0.5% cadmium."

Bullseye founder and co-owner Daniel Schwoerer was reached by phone Monday afternoon, a short time after Monro left his building.

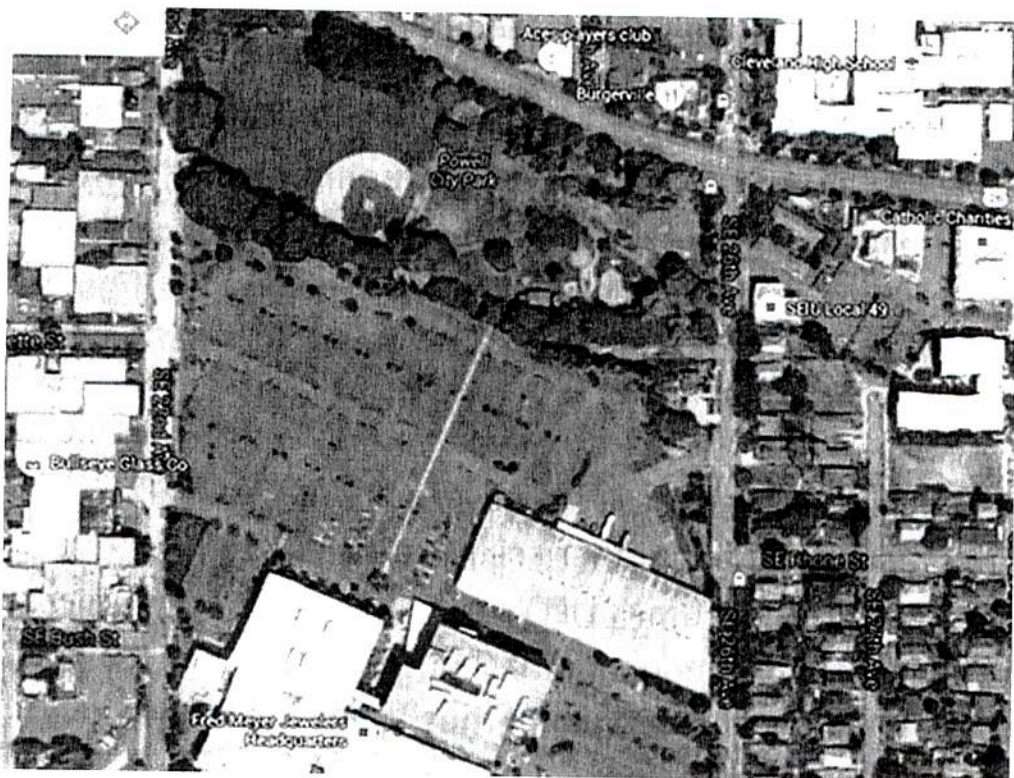
Shaken by just then learning DEQ's findings, Schwoerer said, "We were not aware of potential emissions. All I can say is we're a good citizen. We're concerned." He added, "I know we're in compliance with DEQ and other agencies.... We've done everything within the law to work with these materials."

Schwoerer referred the *Mercury* to a staffer he said had more technical expertise: Eric Durrin, who minds the company's finances. Durrin offered little beyond four or five robotic repetitions that "We operate our factory in full compliance with our discharge permit." Asked what equipment Bullseye had in place to limit fugitive emissions, he stated at least twice, "We handle our raw materials in a safe and professional manner." But Durrin was unfamiliar with the "baghouse" air pollution control device that DEQ requires his company deploy. (Monro inspected it on Monday and said it was in good shape.)

Durrin pointed to another Bullseye employee, Sam Andreacos, who he said was more involved in production, and would know better. Asked his awareness of cadmium as a neurotoxin that recent research indicates may be thought of as somewhat analogous to lead, Durrin said, "My training is in accounting."

Andreacos, a "glass chemist" with Bullseye, declined to speak with the *Mercury*, saying "I don't feel compelled to talk you." Neither Bullseye co-owner Schwoerer nor Durrin replied to questions about whether the company would commit to suspending its use of arsenic and cadmium.

Ultimately of course, any decision rests with the private company's co-owners Schwoerer and business and life partner Lani McGregor, who sits on the Portland Art Museum's board of trustees.



- Google

- An aerial view showing Bullseye Glass's proximity to Fred Meyer corporate headquarters, a city park, and Cleveland High School

DEQ establishes safe air goals known as Ambient Benchmark Concentrations (ABCs); for cadmium the figure is 0.6 nanograms per cubic meter (ng/m³) of air; for arsenic, it's 0.2 ng/m³. The monthly average DEQ obtained in 18 samples it collected with the current gold-standard monitor from October 6 to November 2 was 29.4 ng/m³ for cadmium and 31.7 ng/m³ for arsenic according to Armitage.

On some days, depending, apparently, on Bullseye's production schedule, the amount of fugitive cadmium released just minimally exceeded Oregon's ABC safe-air goal of 0.6 ng/m³, Armitage said. But on any given day, the amount of cadmium impacting homes and schools and businesses might have far exceeded the already dire monthly averages mentioned above.

For instance, according to Armitage, the DEQ air monitor that spent the month in a Fred Meyer parking lot cheek-by-jowl with Bullseye obtained a daily cadmium level of 195 ng/m³; another day, the figure was 133 ng/m³. Those levels are 325 and 222-times DEQ's safe-air goal.

The three highest daily readings for arsenic were 101 ng/m³; 97 ng/m³; 93 ng/m³, according to another scientist involved in the monitoring. That's hundreds of times DEQ's safe-air goal for arsenic, based on its potential as a carcinogen, of 0.2 ng/m³. It's unknown how constant October's dangerous levels have been over Bullseye's 42 years in business.

Aware of DEQ's findings, the *Mercury* reached out on Tuesday to the management of the day care facility at Fred Meyer's headquarters,

KinderCare Education LLC, and alerted them to the toxic plume that washed regularly over the building—at least this past October.

KinderCare Health and Safety Director Stephanie Kuntz replied by email.

“We were caught entirely unaware that any testing had even occurred, and are horrified to hear that the testing apparently indicated that potentially harmful chemicals were present in the air at the time....” Kuntz wrote. “Until we know more about the state of the air and soil quality at the center and can assess the risks of exposure present, if any, we will keep children indoors.”

Kuntz says her day care has reached out to the Multnomah County Health Department about the issue and has been told that new filters on its ventilation system will help.

“We are informed by them that proper filtration on an HVAC system should materially protect the air quality in our center,” she wrote. “They did not recommend any additional actions in response to the issue at this time....”

Batterman, the University of Michigan professor, said new-generation HVAC filters “can reduce indoor concentrations of the toxic by two times or three times the levels of the outside, ambient air.” Asked whether that should provide much reassurance to parents of kids exposed to cadmium levels 49 times the state benchmark and arsenic 159 times that level, he said no.

Batterman added that keeping children inside lowers exposure, but does not eliminate it. Asked about DEQ's findings in general, he

termed cadmium and arsenic known carcinogens and said, "I'd be very concerned.... There are lots of potential effects."

Oddly enough, DEQ actually alerted Bullseye this past September that it was about to set up an air monitor close by. The agency informed Bullseye's Durrin.

To their credit, both the DEQ and the OHA have been working at a feverish pace since receiving October's data on January 20th. Once the *Mercury* independently learned of the unfolding disaster, both Armitage and Oregon Health Authority toxicologist David Farrer granted frank interviews.

In conjunction with the Multnomah County Health Department, both agencies will be informing the public of their findings. The delay is due to the formulation of "risk maps," which will indicate, to some degree, how far the cadmium and arsenic spread from its source.

That involves crunching the data from the Fred Meyer parking lot along with DEQ's air monitors located in St. Johns, at North Roselawn, and a third location. The maps should be completed this week, and then the public announcement will be made, perhaps Wednesday.

In fact, the agencies have taken tentative steps toward alerting the public. On Tuesday evening, after being questioned by the *Mercury*, the DEQ briefly posted a press release on its findings, which announced: "Preliminary data showing the existence of high levels of cadmium and arsenic in the air near S.E. 22nd Ave. and Powell Boulevard in Portland are prompting state agencies to investigate potential health risks from exposure to these metals."

The agency subsequently took the release down, and has since posted a shorter version.

Portlanders can take some small comfort from the fact that there's no Flint-Michigan-drinking-water style cover-up here.

Armitage and her DEQ colleagues have been trying to determine the source of the elevated cadmium that has fouled Portland's air since at least 2004. She said, "We've been hunting for it for three years, and it looks like we found it."

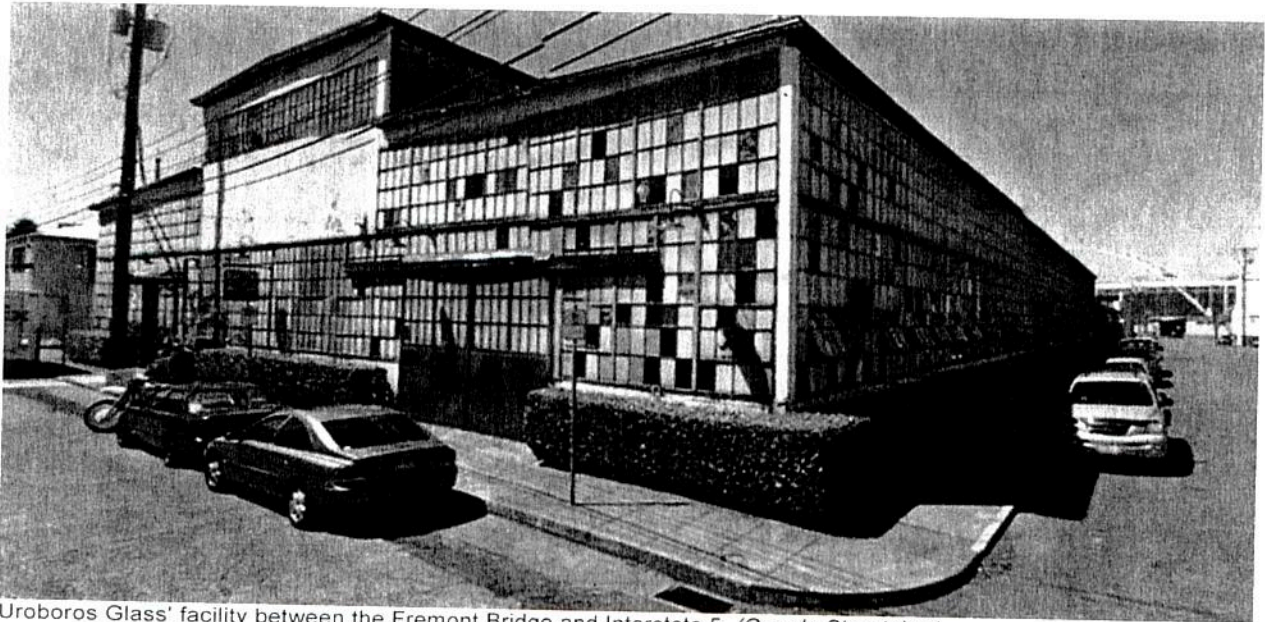
DEQ was alerted to the likely source by a U.S. Forest Service study of air toxics that show up in moss. Once the initial data hit Armitage's desk two weeks ago, it's been all hands-on-deck, she says, to generate those risk maps that OHA wants so as not to unduly alarm all of Portland.

Still, any backyard gardeners growing leafy vegetables such as kale, which particularly leach up cadmium from the soil, well might consider eating no more till they get their soil tested.

Stoll Berne's attorney, Keith Dubanevich, said "If you're a homeowner living in the area, the argument can be made that your property value has decreased."

Daniel Forbes is the author of Derail this Train Wreck. He lives in Portland, and can be reached at ddanforbes@aol.com.

Second Portland glass company suspends cadmium use amid pollution worries



Uroboros Glass' facility between the Fremont Bridge and Interstate 5. (Google Streetview)

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By Rob Davis | The Oregonian/OregonLive

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on February 08, 2016 at 1:53 PM, updated February 18, 2016 at 9:00 AM

PORTLAND'S TOXIC AIR

Oregon warns home gardeners, Portland leaders lash out at state pollution response

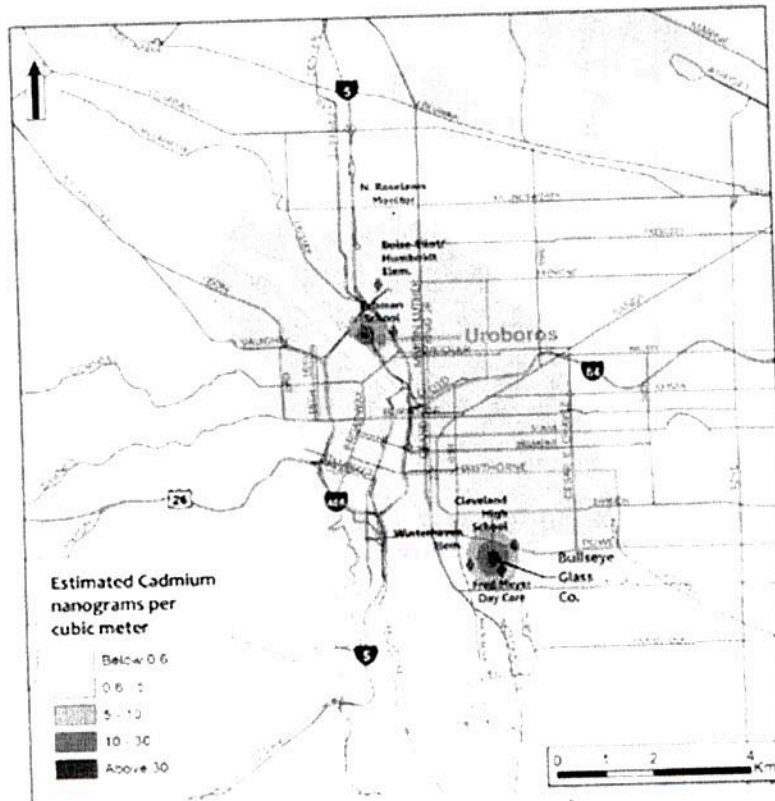
This post has been updated to clarify the status of Harriet Tubman Middle School.

A second Portland company on Monday voluntarily suspended using cadmium to make colored glass, days after state environmental regulators released a map showing high concentrations of the carcinogenic metal were found nearby.

Uroboros Glass, which manufactures colored glass used in art, sits on the fringe of one of two cadmium hotspots in Portland. Federal scientists studying metal

concentrations found in tree moss made the discovery last year, detecting levels of cadmium that far exceeded state safety targets.

"We don't feel like it's really clear that we're the responsible party, but since we use cadmium we'd rather be on the safe side," said Eric Lovell, Uroboros' president. "Even if we were emitting all that cadmium by ourselves, it's hard to figure out why it'd concentrate a half-mile away."



A map of two cadmium air pollution

hotspots in Portland released Friday. The Oregonian has added the location of a second glass manufacturer, Uroboros Glass, which announced it was suspending cadmium use in its glass. *Oregon DEQ/The Oregonian*

A map released Friday by the Oregon Department of Environmental Quality shows two hotspots for cadmium pollution in Portland.

The largest is in Southeast Portland, where the agency said it believes another manufacturer, Bullseye Glass, was responsible. Bullseye announced last week it was immediately suspending use of cadmium and another metal, arsenic, which was also detected in high concentrations.

The other hotspot sits between Interstate 5 and the Fremont Bridge. The cause isn't clear. Uroboros isn't as centrally located in the nearby hotspot as Bullseye Glass is in the Southeast Portland one.

Sarah Armitage, a state air toxics specialist, said last week two glass companies were close to the northern hotspot: Uroboros and National Engravers Inc., formerly known as Ostrom Glass. She said the state didn't know whether either was responsible.

National Engravers' building sits closer to the center of the northern hotspot than Uroboros. But company owner Gary Tinker said the two-employee company doesn't use heavy metals. It etches glass for trophies inside an enclosed cabinet.

"We're just a simple trophy manufacturer," Tinker said. "I'm not involved in anything hazardous – thank God."

Uroboros doesn't use arsenic, but it has used cadmium for years, Lovell said. The metal is used to make red, orange and yellow glass. The Department of Environmental Quality contacted the company in 2009 after air monitoring at nearby Harriet Tubman Middle School found unusually high cadmium levels. The school later closed, but is being used this year to house students from the Faubion School.

Lovell said his company compared its cadmium use to the days when the Tubman monitor found high levels. Some days, Uroboros had melted cadmium. But many days, the monitor detected cadmium when the company hadn't used it. No clear correlation was established.

Uroboros is consulting with an environmental company to see whether air models would project its emissions to drift west toward the center of the hotspot. Lovell said that would surprise him. After working at the site at 2139 N. Kerby Ave. for 30 years, he said, "the wind comes at us from that direction almost all the time."

The Department of Environmental Quality hasn't announced any plans to monitor the air nearby, but has said it would investigate.

The company's emissions aren't monitored, Lovell said, because it doesn't use enough cadmium to need an air pollution permit.

State environmental regulators are participating in a community forum Tuesday from 5 p.m. to 9 p.m. at the Cleveland High School cafeteria, 3400 S.E. 26th Avenue, Portland, OR 97202. More information is [here](#).

Correction: This post was updated to clarify that Harriet Tubman Middle School is housing students from Faubion School this year. It had been closed.

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